



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,217	11/19/2001	Robert M. Zeidman	6257-16302	9153
35690	7590	03/24/2011	EXAMINER	
MEYERTONS, HOOD, KIVLIN, KOWERT & GOETZEL, P.C.			LUU, CUONG V	
P.O. BOX 398				
AUSTIN, TX 78767-0398			ART UNIT	PAPER NUMBER
			2128	
			NOTIFICATION DATE	DELIVERY MODE
			03/24/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patent_docketing@intprop.com
ptomhkg@gmail.com

Office Action Summary	Application No. 10/044,217	Applicant(s) ZEIDMAN, ROBERT M.	
	Examiner Cuong V. Luu	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 64-70 and 72-101 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 64-70 and 72-101 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/17/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 64-70 and 72-101 are pending. Claims 86-101 have been added. Claims 1-63 and 71 have been canceled. Claims 64-70 and 72-101 have been examined. Claims 64-70 and 72-101 have been rejected.

Response to Arguments

1. The 35 USC 101 rejections of claims 87-91 have been withdrawn in light of amendments to the claims.
2. The 35 USC 112, 2nd rejections of claims 65, 90, 94, 99, and 87-91 have been withdrawn in light of amendments to the claims.
3. Applicant's arguments, see pages 13-16, filed 12/17/2010, with respect to the rejection(s) of claims 64, 87, 92, and 97 under 35 USC 103(a) rejections have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Evans et al. (U.S. Pat. 6,279,146 B1), the Applicant's admitted Prior Art, and Lee (A Hardware-Software Co-Simulation Environment, University of California at Berkeley, 1993).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2128

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 64-69, 72-78, 80-81, 83-88, 90, 92-94, and 97-99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. (U.S. Pat. 6,279,146 B1) in view of the AAPA and Lee (A Hardware-Software Co-Simulation Environment, University of California at Berkeley, 1993).

1. As per claim 64, the Chang teaches system, comprising:

at least one processor (col. 8 lines 50-51); and

a memory (col. 8 lines 50-51. A computer inherits a memory);

wherein the computer system is configured to couple to an emulator, wherein the emulator is configured to emulate an integrated circuit designed to communicate bidirectionally with a computer peripheral device (col. 8 line 55 through col. 9 line 3. The emulator 60 communicates bidirectionally with a computer 118, which is connected with computer 114 via a computer peripheral device. This teaching reads onto this limitation);

wherein the memory has computer instructions stored thereon that are executable by the at least one processor to cause the computer system to:

receive one or more digital data packets from the computer peripheral device (col. 9 lines 21-28);

send data contained in the buffered data packets to the emulator over a computer peripheral interface coupled to the computer system, (col. 9 lines 21-28).

but does not teach:

store the digital data packets received from the peripheral device in a memory buffer;

retrieve the digital data packets from the memory buffer to send to the emulator; and

wherein receiving data from the computer peripheral device at a first transmission rate and sending data to the to the emulator at a second transmission rate which is slower than the first transmission rate.

The AAPA teaches that a peripheral device may transmit data at a first transmission rate faster than the a second transmission rate that the emulator can perform (specification p. 1 lines 10-20);

Lee teaches for two electronic entities in communication with each other but transmit data at different rates (one higher than another), buffers can be placed in between to store received data at one rate and then transmit to destination at another transmission rate (p. 8 ¶ 1).

It would have been obvious to one of ordinary skill in the art to combine the teachings of the Evans, AAPA, and Lee. AAPA's teachings would have connected of an emulator to peripheral device wherein the emulator transmits data at a rate slower than that of the peripheral (AAPA, p. 1 lines 10-20), and Lee's teachings would have provided a method to synchronize two different transmission rates to test functions of the emulator in real time (p. 8 ¶ 2).

2. As per claim 65, Evans teaches wherein the instructions are executable to cause the computer system to modify data in the received one or more digital data packets to a data format accepted by the emulator (col. 9 lines 17-28).
3. As per claim 66, Evans teaches the computer peripheral device is a network interface card (col. 8 line 55 through col. 9 line 3. In these lines, Evans teaches the computer 114 connected to computer 119 or 118 via a LAN. This implies the computer peripheral device is

Art Unit: 2128

a network interface card); but does not teach wherein the instructions are executable as a multi-threaded program; and

Lee teaches wherein the instructions are executable as a multi-threaded program (p. 30 ¶ 3);

4. As per claim 67, the AAPA teaches the emulator is incapable of receiving and processing data sent to the emulator at the first transmission rate (p. 1 lines 10-20).
5. As per claim 68, Evans teaches wherein the emulator is implemented, at least in part, using field programmable gate arrays (col. 9 lines 60-65); and
wherein the field programmable gate arrays are operable to be programmed with a hardware model corresponding to the design of the integrated circuit (col. 9 lines 60-65), wherein the design allows bidirectional communication with the computer peripheral device (already discussed in claim 64).
6. As per claim 69, Evans teaches the computer peripheral interface is a network connection (col. 8 lines 44-49. The PCI connection between the emulator having controller 112 with computer 114 is considered a network connection); and
wherein the instructions are executable to cause the computer system to repackage data from the stored digital data packets (col. 9 lines 17-28);
7. As per claim 72, Chang teaches the received one or more digital data packets are variable in size (p. 33 ¶ 3 the last sentence).

Art Unit: 2128

8. As per claim 73, these limitations have already been discussed in claim 64. They are, therefore, rejected for the same reasons.
9. As per claim 74, the AAPA teaches the data sent to the second computer is usable to debug the design of the integrated circuit (p. 1 lines 10-12); and
Evans teaches the interface is a network connection (already discussed in claim 69).
10. As per claim 75, Evans teaches:
the first computer repackaging data from the buffered data packets (col. 9 lines 17-28);
wherein the repackaged data is the data sent from the first computer to the emulator (col. 9 lines 17-28).
11. As per claim 76, this limitation has been discussed in claim 68. It is, therefore, rejected for the same reasons.
12. As per claim 77, Evans teaches the emulator sending data corresponding to the received and processed data to a second computer (col. 9 lines 17-28).
13. As per claim 78, the AAPA teaches the emulator is configured to emulate a network interface card of the second computer (p. 1 lines 23-26. In these lines the AAPA teaches the emulator process data and transmit data. This teaching is interpreted as transmitting data to a second computer after the emulator having a network interface receiving data, so it should read onto this limitation); wherein the integrated circuit is designed to be a component of the network interface card; and

wherein the first transmission rate is a data rate of an Ethernet network (the AAPA, specification p.1 lines 18-20).

14. As per claim 80, these limitations have already been discussed in claim 68. They are, therefore, rejected for the same reasons.

15. As per claim 81, these limitations have already been discussed in claim 64. They are, therefore, rejected for the same reasons.

16. As per claim 83, Evans teaches the computer peripheral device is a network device and wherein the received one or more digital data packets are transmitted from the network device via a network connection according to a network communications protocol (col. 9 lines 59-65. In these lines Evans teaches the 2 computers connected via a LAN, so it reads onto this limitation).

17. As per claim 84, these limitations have already been discussed in claim 69. They are, therefore, rejected for the same reasons.

18. As per claim 85, these limitations have already been discussed in claim 67. They are, therefore, rejected for the same reasons.

19. As per claim 86, Evans teaches the computer peripheral device is coupled to a different computer system, wherein the different computer system is configured to send data from the computer peripheral device via a network interface, and wherein the network interface is the

Art Unit: 2128

computer peripheral interface (col. 9 lines 59-65. In these lines Evans teaches the 2 computers connected via a LAN, so it reads onto this limitation).

20. As per claim 87, Evans teaches a method comprising:

receiving digital data from a circuit emulator at a program running on at least one processor of a computer, wherein the digital data is received at a first transmission rate, and wherein the circuit emulator is configured to emulate an integrated circuit that is designed to communicate bidirectionally with a computer peripheral device (col. 8 line 55 through col. 9 line 3. The emulator 60 communicates bidirectionally with a computer 118, which is connected with computer 114 via a computer peripheral device. The computer 114 has a program to control the communication back and forth between the emulator and other computers. These teachings read onto this limitation);

transmitting data to the computer peripheral device over a computer peripheral interface coupled to the computer, wherein said transmitting is performed by the program ((col. 9 lines 21-28));

but does not teach:

storing the received data in a memory of the computer, wherein said storing is performed by the program;

retrieving the stored data from the memory, wherein said retrieving is performed by the program; and

transmitting the retrieved data to the computer peripheral device at a second transmission rate, wherein the first transmission rate is slower than the second transmission rate.

The AAPA teaches a peripheral device may transmit data at a second transmission rate faster than the a first transmission rate that the emulator can perform (specification p. 1 lines 10-20)

Lee teaches for two electronic entities in communication with each other but transmit data at different rates (one higher than another), buffers can be placed in between to store received data at one rate and then transmit to destination at another transmission rate (p. 8 ¶ 1).

It would have been obvious to one of ordinary skill in the art to combine the teachings of the Evans, the AAPA, and Chang. AAPA's teachings would have connected of an emulator to peripheral device wherein the emulator transmits data at a rate slower than that of the peripheral (AAPA, p. 1 lines 10-20), and Lee's teachings would have provided a method to synchronize two different transmission rates to test functions of the emulator in real time (p. 8 ¶ 2).

21. As per claim 88, these limitations have already been discussed in claim 67. They are, therefore, rejected for the same reasons.

22. As per claim 90, Evans teaches modifying the received data from the circuit emulator to a data format accepted by to the computer peripheral device, wherein said modifying is performed by the program (col. 9 lines 17-28).

23. As per claim 92, these limitations have already been discussed in claim 87. They are, therefore, rejected for the same reasons.

24. As per claim 93, these limitations have already been discussed in claim 88. They are, therefore, rejected for the same reasons.

25. As per claim 94, these limitations have already been discussed in claim 90. They are, therefore, rejected for the same reasons.

26. As per claim 97, these limitations have already been discussed in claim 87. They are, therefore, rejected for the same reasons.

27. As per claim 98, these limitations have already been discussed in claim 88. They are, therefore, rejected for the same reasons.).

28. As per claim 99, these limitations have already been discussed in claim 90. They are, therefore, rejected for the same reasons.

Claims 79, and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. in view the AAPA and Lee Gagne et al. as applied to claims 73 and 81 above, and further in view of Gagne et al. (U.S. Patent 5303347).

29. As per claim 79, the AAPA teaches the emulator is configured to emulate a network interface card (specification p. 1 lines 21-26);
but Evans, the AAPA, and Lee do not teach:
examining that data packet;

Art Unit: 2128

determining if that data packet is addressed to the emulator, wherein the emulator is configured to emulate a network interface card; and

if that data packet is addressed to the emulator, buffering that data packet and sending data contained in the buffered packet to the emulator at the second transmission rate.

Gagne teaches the computer is configured to, for each incoming data packet:

examining that data packet (col. 1 line 60 through col. 2 line 2. In these lines Gagne teaches receiving data and put them in proper buffers for different destination. This teaching implies that data packets are examined);

determine if that data packet is addressed to a destination (col. 1 line 60 through col. 2 line 2. In these lines Gagne teaches receiving data and put them in proper buffers for different destination. This teaching reads onto this limitation); and

if that data packet is addressed to a destination, buffering that data packet and sending data contained in the buffered packet to the destination (col. 1 line 60 through col. 2 line 2. In these lines Gagne teaches receiving data and put them in proper buffers for different destination. This teaching reads onto this limitation).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Evans, Lee, the AAPA, and Gagne. Gagne's teachings would have provided a method to direct data a specific destination (col. 1 line 60 through col. 2 line 2).

30. As per claim 82, these limitations have already been discussed in claim 79. They are, therefore, rejected for the same reasons.

Art Unit: 2128

Claims 70, 89, 95, and 100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. in view of the AAPA and Lee as applied to claim 65, 87, 92, and 97 above, and further in view of Watanabe et al (U.S. Pat. 5761486).

31. As per claim 70, Evans, the AAPA, and Lee do not teach the second computer is further configured to log data corresponding to received data and/or sent data in a log file.

However, Watanabe teaches keeping a record of communicated data from source to destination (col. 6 lines 18-23).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Evans, Gagne, and Watanabe. Watanabe's teachings would have provided designers information of the emulation in order to analyze and evaluate the emulation (col. 3 lines 43-51).

32. As per claim 89, Evans, the AAPA, and Lee do not teach the program keeping a record of the data received from the circuit emulator, wherein the received data is usable to optimize and/or debug a design of the integrated circuit. Watanabe teaches keeping a record of the data received (col. 6 lines 18-23) and the AAPA teaches the data sent to the second computer is usable to debug the design of the integrated circuit (p. 1 lines 10-12).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Evans, Gagne, Watanabe, and the AAPA. Watanabe's and the AAPA's teachings would have provided designers information of the emulation in order to analyze and evaluate the emulation (Watanabe, col. 3 lines 43-51) and helped an emulator to be connected to a network for debugging (the AAPA, specification p. 1 lines 10-20)

33. As per claim 95, these limitations have already been discussed in claim 70. They are, therefore, rejected for the same reasons.

34. As per claim 100, these limitations have already been discussed in claim 89. They are, therefore, rejected for the same reasons.

Claim 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. in view of the AAPA and Lee as applied to claim 87 above, and further in view of Chang et al. (U.S. Patent 6,047,387).

35. As per claim 91, Evans teaches wherein the computer peripheral device is a network interface device (col. 9 lines 59-65. In these lines Evans teaches the 2 computers connected via a LAN, so it reads onto this limitation).

Evans, the AAPA, and Lee do not specifically teach said receiving data from the circuit emulator is executed in a first thread, and said transmitting the data received from the circuit emulator is executed in a second thread.

Chang teaches a thread for receiving data and a thread for transmitting data (col. 4 lines 10-19).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Evans, the AAPA, and Lee, and Chang. Chang's teaching would have controlled the data transmission to or from a simulation module (col. 4 lines 10-21) that in combination with data comparison with intended results to assess the precision of return signals to achieve necessary functional testing (col. 3 lines 1-7).

Art Unit: 2128

Claim 96 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans in view of the AAPA and Lee as applied to claims 92 and 97 above, and further in view of Chu et al (ACM, 0-89791-089-3/83/0300-0170, 1983).

36. As per claim 96, Evans, the AAPA, and Lee do not teach the operations further include recording the throughput of the transmitted data.

However, Chu et al teach this feature (p. 171, col. 2, paragraph 5, lines 1-6).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Evans, the AAPA, Lee, and Chu. Chu's teaching of recording the throughput of the data packets would have provided designers performance statistics of devices under simulation to make decisions about modification, re-design, or adjustment regarding the those devices.

37. As per claim 101, these limitations have already been discussed in claim 96. They are, therefore, rejected for the same reasons.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cuong V. Luu whose telephone number is 571-272-8572. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah, can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. An inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group receptionist: 571-272-2100.

Art Unit: 2128

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kamini S Shah/

Supervisory Patent Examiner, Art Unit 2128

/Cuong V Luu/

Examiner, Art Unit 2128